

Statistical cost of interactive quantum phase estimation in quantum chemistry

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Interactive quantum phase estimation is essentially used in solving the several computational problems, especially, quantum chemistry calculation. In quantum chemistry calculation, a eigenvalue of a given Hamiltonian can be computed with high probability. On calculating the computational speed, we should discuss how many trials we need to solve the eigenvalue of the Hamiltonian, which is hardly verified. In this work, we evaluate the statistical cost of interactive quantum phase estimation via the statistical hypothesis testing to affirm that the solved eigenvalue is the desired one. This work is collaborated with Shintaro Niimura, Aruto Hosaka, and Fumiaki Kannari.